

REMARKS

Reconsideration of this application, as amended, is respectfully requested. The Applicants wish to draw the Examiner's attention to the applicants' related co-pending applications and issued patents (see Appendix A) directed to nanoparticles and methods of preparation and use thereof.

The Applicants note that the Examiner did not return the executed PTO 1449 form for the 6th Supp. IDS that was hand-delivered to the Examiner on September 9, 2002. Subsequent to the issuance of this Office action, the Applicants had filed a 7th Supp. IDS. Attached copies of PTO stamped post-cards show that the Patent Office did receive both IDSs, PTO-1449 forms and cited references. The Applicants request that the Examiner fully execute the PTO 1449 forms for the 6th and 7th Supp. IDSs and return a copy of the executed PTO 1449 forms to the undersigned representative. Copies of the 6th and 7th Supplemental IDSs and associated PTO 1449 forms are attached. The Examiner is requested to contact the undersigned representative if the Examiner would like to have another copy of the references.

The specification has been amended to update the priority claim. No new matter has been added to the application as a result of this amendment.

Claims 425-430 were pending in this application. These claims were cancelled and new claims 433-489 were added to further clarify the invention. The new claims are fully supported by the cancelled claims, by claims 190-265 and the specification on page 21, line 3 to page 22, line 22; page 77, line 1 to page 80, line 27; and page 90, line 8 to page 93, line 24. Thus, the new claims do not constitute new matter.

Turning now to the Office action, claims 425-430 stand rejected under 35 U.S.C. section 103(a) as being unpatentable over Engelhardt et al. (U.S. Patent No. 5,288,609)("Engelhardt") in view of Brooks et al. (U.S. Patent No. 5,571,726)("Brooks"). These claims also stand rejected under 35 U.S.C. section 112, second paragraph, for indefiniteness. Finally, claims 425-430 stand provisionally rejected for obviousness-type double patenting in view of claims 433-436, 446-448, and 458-461 of copending application no. 09/975,498. The Applicants respectfully traverse these rejections and submit that these rejections cannot be applied to the new claims.

Rejection under 35 U.S.C. section 103(a)

Claims 425-430 stand rejected under 35 U.S.C. section 103(a) as being unpatentable over Engelhardt et al. (U.S. Patent No. 5,288,609)("Engelhardt") in view of Brooks et al. (U.S. Patent No. 5,571,726)("Brooks"). The Examiner alleged that it would have been obvious to an ordinary skilled artisan to employ Brooks' gold nanoparticles in Engelhardt's method of detecting genetic material. Applicants respectfully traverse this rejection.

The Federal Circuit reiterated the manner in which obviousness rejections are to be reviewed. Where claimed subject matter has been rejected as obvious in view of a combination of prior art references, "a proper analysis under § 103 requires, *inter alia*, consideration of two factors: (1) whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and (2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success." *In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991), citing *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 U.S.P.Q. 2d 1529, 1531 (Fed. Cir. 1988). As the Federal Circuit emphasized by succinctly summarizing: "Both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the Applicants' disclosure." *Id.* Contrary to the Examiner's position, the Applicants respectfully submit that neither Engelhardt nor Brooks, alone or in combination with each other, suggest doing what the Applicants have done.

Specifically, the Examiner alleged that Engelhardt taught detection of genetic materials such as DNA and RNA using labeled probes. The discussion is found starting in col. 2, line 13 of Engelhardt. Col. 5 describes further discussion regarding particle labeled probes and detection of nucleic acids. The Examiner further alleged that Brooks taught detection of immunochemically reactive components using colloidal gold particles. The discussion is found starting on col. 3, line 65. There is no teaching or suggestion in either Engelhardt or Brooks of any method of nanofabrication or kit for preparing a desired nanomaterial or nanostructure. Furthermore, there is no teaching or suggestion in either Engelhardt or Brooks of any nanofabrication method or kit based on nanoparticles having an oligonucleotide surface density of at least 10 picomoles/cm². See, e.g., claims 433, 438, and 462. Nanoparticles having the recited surface density were found to exhibit remarkable stability and other properties such as

unexpected sharp melting profiles, selectivity, and sensitivity. See, for instance, the specification at page 78, line 26 to page 79, line 10. See also Examples 3, 5 and 7. Thus, new claims 433-489 recite limitations that are not taught, made obvious, or suggested by Engelhardt or Brooks, alone or in combination. Accordingly, the Applicants submit that neither Engelhardt nor Brooks, alone or in combination, can be applied in rejecting the new claims for obviousness under section 103(a).

Rejection under 35 U.S.C. section 112, second paragraph

Claims 425-430 stand rejected under 35 U.S.C. section 112, second paragraph, for indefiniteness. In light of the cancellation of these claims, the Applicants submit that the rejection is now moot and cannot be applied in rejecting the new claims.

Rejection for Obviousness-type Double Patenting

Claims 425-430 stand provisionally rejected for obviousness-type double patenting in view of claims 433-436, 446-448, and 458-461 of co-pending application no. 09/975,498 (the '498 application, now allowed). The Applicants respectfully traverse this rejection and submit that new claims 433-489 are not obvious over claims 433-436, 446-448 and 458-461 of the '498 application. The subject matter of new claims are distinct from the cited claims of the '498 application. Applicants respectfully submit that the obviousness-type double patenting rejection against the cancelled claims based on claims of the '498 application cannot be applied against new claims 433-489 in this application.

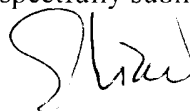
Conclusion

In conclusion, the Applicants respectfully submit that the claims in this application are in allowable condition and request a Notice to this effect.

Reconsideration of this application is respectfully requested and a favorable determination is earnestly solicited. The Examiner is invited to contact the undersigned representative if the Examiner believes that this would be helpful in expediting the prosecution of this application.

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Respectfully submitted,



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APPENDIX A

ATTY Case No.	Serial No./ Filing Date	Inventors/Title	Status
00-653-A	U.S. 09/927,777 Filed 8/10/01	Mirkin, Letsinger, Mucic, Storhoff, Elghanian, Taton, Garamella, Li, Park/ NANOPARTICLES HAVING OLIGONUCLEOTI DES ATTACHED THERE TO AND USES THEREFORE	PENDING
00-713-B1	09/923,625 Filed 8/7/01	Mirkin, Letsinger, Mucic, Storhoff, Elghanian/ NANOPARTICLES HAVING OLIGONUCLEOTI DES ATTACHED THERE TO AND USES THEREFOR	PENDING
00-713-C	09/344,667, filed 6/25/99	Mirkin, Letsinger, Mucic, Storhoff, Elghanian/ NANOPARTICLES HAVING OLIGONUCLEOTI DES ATTACHED THERE TO AND USES THEREFORE	U.S. Patent No. 6,361,944, issued 3/26/02
00-713-I	U.S.S.N 09/603,830 Filed 6/26/00	Mirkin, Letsinger, Mucic, Storhoff, Elghanian, Taton; NANOPARTICLES HAVING OLIGONUCLEOTI DES ATTACHED THERE TO AND USES THEREFOR	U.S. Patent No. 6,506,564, issued 1/14/03
00-713-I-1	09/961,949 9/20/01	Mirkin, Letsinger, Mucic, Storhoff, Elghanian, Taton;	U.S. Patent No. 6,582,921, issued June 24, 2003

ATTY Case No.	Serial No./ Filing Date	Inventors/Title	Status
		NANOPARTICLES HAVING OLIGONUCLEOTI DES ATTACHED THERETO AND USES THEREFOR	
00-713-I-2	09/957,318 9/20/01	See 00-713-I-1	PENDING
00-713-I-3	09/957,313 9/20/01	See 00-713-I-1	ALLOWED
00-713-I-4	09/966,491 9/28/01	See 00-713-I-1	ALLOWED
00-713-I-5	09/966,312 9/28/01	See 00-713-I-1	ALLOWED
00-713-I-6	09/967,409 9/28/01	See 00-713-I-1	PENDING
00-713-I-7	09/974,500 10/10/01	See 00-713-I-1	PENDING
00-713-I-8	09/974,007 10/10/01	See 00-713-I-1	PENDING
00-713-I-9	09/973,638 10/10/01	See 00-713-I-1	PENDING
00-713-I-10	09/973,788 10/10/01	See 00-713-I-1	PENDING
00-713-I-11	09/975,062 10/11/01	See 00-713-I-1	PENDING
00-713-I-12	09/975,376 10/11/01	See 00-713-I-1	PENDING
00-713-I-13	09/975,384 10/11/01	See 00-713-I-1	PENDING
00-713-I-14	09/975,498 10/11/01	See 00-713-I-1	ALLOWED

ATTY Case No.	Serial No./ Filing Date	Inventors/Title	Status
00-713-I-15	09/975,059 11/11/01	See 00-713-I-1	PENDING
00-713-I-16	09/976,601 10/12/01	See 00-713-I-1	PENDING
00-713-I-17	09/976,968 10/12/01	See 00-713-I-1	PENDING
00-713-I-18	09/976,971 10/12/01	See 00-713-I-1	ALLOWED
00-713-I-19	09/976,863 10/12/01	See 00-713-I-1	PENDING
00-713-I-20	09/976,577 10/12/01	See 00-713-I-1	PENDING
00-713-I-21	09/976,618 10/12/01	See 00-713-I-1	PENDING
00-713-I-22	09/981,344 10/15/01	See 00-713-I-1	PENDING
00-713-I-23	09/976,900 10/12/01	See 00-713-I-1	PENDING
00-713-I-24	09/976,617 10/12/01	See 00-713-I-1	PENDING
00-713-I-25	09/976,378 10/12/01	See 00-713-I-1	PENDING
00-713-i-26	10/410,324 04/10/03	See 00-713-I-1	PENDING
00-713-L	U.S.S.N. 09/693,005 Filed 10/20/00	Mirkin, Letsinger, Mucic, Storhoff, Elghanian/ NANOPARTICLES HAVING OLIGONUCLEOTI DES ATTACHED THERETO AND	U.S. Patent No. 6,495,324, issued 12/17/02

ATTY Case No.	Serial No./ Filing Date	Inventors/Title	Status
		USES THEREFORE	
00-713-M	U.S.S.N. 09/693,352 Filed 10/20/00	Mirkin, Letsinger, Mucic, Storhoff, Elghanian/ NANOPARTICLES HAVING OLIGONUCLEOTI DES ATTACHED THERE TO AND USES THEREFORE	U.S. Patent No. 6,417,340, issued 7/9/02
00-714-G	U.S. 09/830,620 Filed 8/15/01	Mirkin, Nguyen/ NANOPARTICLES WITH POLYMER SHELLS	PENDING
00-715-A	U.S. 09/760,500 Filed 1/12/01	Mirkin, Letsinger, Mucic, Storhoff, Elghanian, Taton; Garamella, Li/ METHOD OF ATTACHING OLIGONUCLEOTI DES TO NANOPARTICLES AND PRODUCTS PRODUCED THEREBY	ALLOWED
00-1085-A	U.S.S.N. 09/820,279 Filed 3/28/01	Mirkin, Letsinger, etc./ METHOD AND MATERIALS FOR ASSAYING BIOLOGICAL MATERIALS	ALLOWED
00-1086-A	U.S. 09/903,461 Filed 7/11/01	Letsinger, Garimella/ METHOD OF DETECTION BY ENHANCEMENT OF SILVER STAINING	U.S. Patent No. 6,602,669, Filed 8/5/03
01-565-A	USSN 10/125,194 Filed 4/18/02	Mirkin, Nguyen, Watson, Park/ OLIGONUCLEOTI DE-MODIFIED ROMP POLYMERS AND CO-	PENDING

ATTY Case No.	Serial No./ Filing Date	Inventors/Title	Status
		POLYMERS	
01-599-A	U.S.S.N. 10/291,291 Filed 11/08/02	Storhoff/NOVEL THIOL-BASED METHOD FOR ATTACHING OLIGONUCLEOTI DES TO NANOPARTICLES	PENDING
01-661-A	U.S.S.N. 10/034,451 Filed 12/28/01	Mirkin, Cao, Jin/ DNA-MODIFIED CORE-SHELL AG/AU NANOCRYSTALS	PENDING
01-661-C	U.S.S.N. 10/153,483 Filed 5/22/02	Mirkin, Cao, Jin/ DNA-MODIFIED CORE-SHELL AG/AU NANOCRYSTALS	PENDING
01-661-E	U.S.S.N. 10/397,579 3/26/03	Mirkin, Cao, Jin/ DNA-MODIFIED CORE-SHELL AG/AU NANOCRYSTALS	PENDING
01-1565-A	U.S.S.N. 10/266,983 Filed 10/08/02	Park, Taton, Mirkin/ARRAY- BASED ELECTRICAL DETECTION OF DNA USING NANOPARTICLE PROBES	PENDING
01-1705-A	U.S.S.N. 10/108,211 Filed 3/27/02	Nam, Park, Mirkin/BIO- BARCODES BASED ON OLIGONUCLEOTI DE-MODIFIED NANOPARTICLES	PENDING
02-338-B	USSN 10/172,428 Filed 6/14/02	Cao, Jin, Nam, Mirkin/MULTICHA NNEL DETECTION USING NANOPARTICLE PROBES WITH	PENDING

ATTY Case No.	Serial No./ Filing Date	Inventors/Title	Status
		RAMAN SPECTROSCOPIC FINGERPRINTS	
02-338-C	10/431,341 5/7/03	Cao, Jin, Nam, Mirkin/MULTICHAN- NEL DETECTION USING NANOPARTICLE PROBES WITH RAMAN SPECTROSCOPIC FINGERPRINTS	PENDING